

REMARKS/ARGUMENTS

Claims 1-90 are pending in the application. Claims 1-90 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Claims 1-90 are rejected under 35 U.S.C. §112, first paragraph because current case law (and accordingly, the MPEP) require such a rejection if a §101 rejection is given. Claims 1-5 and 27-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Lo (U.S. Patent Number 5,408,424; dated 18 April 1995; class 708; subclass 303). Applicant respectfully traverses all of these rejections.

In rejecting Claim 1-90, on the basis of 35 U.S.C. § 101 as being directed to non-statutory subject matter the Examiner argues, inter alia, “[r]egardless of whether any of the claims are in the technological arts, none of them is limited to practical applications in the technological arts”, and further argue, “[t]aking several abstract ideas and manipulating them together adds nothing to the basic equation (...). Examiner finds that Applicant's "data" references are just such abstract ideas.” In response to the Applicant’s previous response, the Examiner further replied “Examiner reads the claims as a whole to carefully search for actual limitations to practical applications and finds none.”

A process is patentable under Section 101 if it produces a 'useful, concrete, and tangible result'. *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* 149 F. 3d 1368, 1373-74, 47 USPQ2d 1596, 1601-02 (Fed. Cir. 1998). The mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, does not, however, render it non-statutory subject matter, so long as it produces such a result. *AT & T Corp. v. Excel Communications Inc.*, 172 F.3d 1352, 1359, 50 USPQ2d 1447, 1453 (Fed. Cir. 1999).

Independent claims 1, 27, and 51 each recite a statutory process that produces a useful, concrete and tangible result; a neural network. Independent claims 70 recites a statutory machine that implements a useful, concrete and tangible result; a digital implementation of a neural network. A neural network *is* a useful, concrete, and tangible result.

A neural network is a general purpose computing construct which like, for example, the Von Neumann computer architecture, has multiple implementations. Patents for general purpose computers comprise those directed to; (1) computer architecture, and (2) those directed to computer applications. There is no need to explain the applications of innovative new computer architecture to patent such an architecture; those in the field know the uses of a general purpose computer. From a patentability standpoint, a new computer architecture is, in and of itself, indisputably statutory subject matter because it is a useful, concrete, and tangible result. Such patents do not, and need not, claim any particular application, even if a specific application is separately patentable.

Similarly, patents directed to neural networks comprise (1) neural network architecture, and (2) neural network applications. There is no need to explain the applications of innovative new computer architecture to patent such an architecture; those in the field know the uses of a general purpose neural network (e.g. speech recognition, text recognition, and the like). From a patentability standpoint, a new neural network architecture is, in and of itself, indisputably statutory subject matter because it is a useful, concrete, and tangible result. Such patents do not, and need not, claim any particular application, even if a specific application is separately patentable.

Indeed, over 4,000 patents have issued on, or including components of, neural networks, lending weight to the fact neural networks are a well know computing architecture whose real world applications are extensive.

Claims 1-90 also stand rejected under 35 U.S.C. § 112, first paragraph in connection with the section 101 rejection. The Examiner alleges that Applicant has not disclosed a practical application for the claimed invention. As argued above, a neural network is a practical application, much like a general purpose computer architecture, and thus the Applicant has disclosed a practical application. Additionally, as previously argued, Applicant notes [0057] of the present specification, discloses that the claimed invention is useful for “rapid, unsupervised processing of complex data sets, such as imagery, databases, textual files, or continuous human speech.” Paragraph [0057] is an assertion that the claimed invention is useful for specific and substantial purposes, and this assertion would be considered credible by a person of ordinary skill in the art. Therefore, the utility requirement of section 101, and its counterpart in section 112, first paragraph, have been met and the rejection should be withdrawn for all independent claims and their corresponding dependant claims.

Independent Claims 1 and 27 stand rejected under 35 U.S.C. 102(b) over Lo. The Examiner asserts that Claim 1's and Claim 27's element ‘using re-entrant feedback from the output channel to perform minimalization for general computation.’ is anticipated by Lo, Fig 6, element 26.”

Lo, Fig 6, element 26, is, according to the disclosure of Lo, is a “a unit time delay device” (Lo, col. 13, ln 29-30), within a multilayer perceptron with interconnected neurons (MLPWIN). The unit time delay device merely delays the signals sent last layer nodes (i.e. the output nodes of the MLP) to its zeroth layer nodes. There is no suggestion in the disclosure of Lo that such a unit time delay device performs the complex function of “minimalization steps on

said combinations to meet specified success criteria whereby the lowest values of said combinations meeting said success criteria are retained.” Thus, the minimalization step is not anticipated by Lo.

In view of all of the above, independent claims 1 and 27, and their dependent claims 2-5 and 28-31, are not anticipated by Lo and the rejection over Lo should be withdrawn.

CONCLUSION

Having responded to all objections and rejections set forth in the outstanding Office Action, it is submitted that claims 1-90 are in condition for allowance and Notice to that effect is respectfully solicited. In the event that the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, he is courteously requested to contact applicant's undersigned representative.

Respectfully submitted,



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Filed: September 10, 2007